

Work Order ID 151482

Tuesday, September 27, 2016 11:54:22 AM

Page 1

Item ID: 647.1601

Revision ID:

Item Name: Wiper Deflector Aft

Start Date: 9/22/2016 Start Qty: 2.00

Required Date: 9/27/2016 Req'd Qty: 2.00

Reference:

Approvals: Process Plan: DAS 21 Date: SEP 28 2016
QC: 9-89 Date: _____

Tooling:

Date: _____

SPC (Y/N): _____

Date: _____

N900040100Setup Start ***NS1***Stop ***NS2***

Cust Item ID:

Customer:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
647.1600	A								
110	Pick Kit	0.00							
110									
Packaging	Memo	0.00							
Packaging									
120		0.00							
120									
Small Fab	Memo	0.00							
Small Fab	1- Assemble as per dwg								
130	QC5- Inspect part completeness to step on W/O	0.00							
130									
QC	Memo	0.01							
Quality Control									

DAS
6
9-89

NOV 07 2016

DAS
36
9-89DAS
38
9-89

NOV 08 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By _____	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of-Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Tuesday, September 27, 2016 11:54:22 AM

Page 2

16/11/9 JF
Em 16/11/9

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : _____			

Picklist Print

Tuesday, September 27, 2016 11:54:21 AM

Page 1

Work Order ID: 151482

151482

Parent Item: 647.1601

647 1601

Parent Item Name: Wiper Deflector Aft

Start Date: 9/22/2016

Required Date: 9/27/2016

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A 12.10.04 NEW ISSUE DD VERF:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
647.1611 *647 1611* Wiper Deflector, Aft		Manufactured	No				Each	3.0000	2	DAS 6 9-89			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				CCK091				3					
				148293				3					7 2016
647.1612 *647 1612* Splice Plate		Manufactured	No				Each	2.0000	4	DAS 6 9-89			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				CCK108				2					
				92068				2					NOV 07 2016
NAS1149FN832P *NAS1149FN832P* Washer		Purchased	No				Each	2,471.000	12	DAS 6 9-89			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA				1537					
				M133769				89					
				M135058				1448					
				ST263				934					
				M135603				934					
MS21042-08 *MS21042-08* USE MS21042L08	MS21042L08	Purchased	No				Each	0.0000	6	DAS 6 9-89			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA				1537					
				M133769				89					
				M135058				1448					
				ST263				934					
				M135603				934					

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS							
	Rework	☐	Skid-tube	☐	Cross tube	☐	Water Jet	☐	Engineering	☐
	Scrap	☐	Machining	☐	Small Fab	☐	Prod. Eng. Coord.	☐	Quality	☐
	Use-as-is	☐	Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐	Other	☐
	Suspected Unapproved	☐	Large Fab	☐	Composite	☐	Supplier	☐		

Date :	Step #:	QTY Effective :	MRB (QS1042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY								
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐								
Misidentified	☐		☐	OTHER :							

Picklist Print

Tuesday, September 27, 2016 11:54:22 AM

Page 2

Work Order ID: 151482

151482

Parent Item: 647.1601

647 1601

Parent Item Name: Wiper Deflector Aft

Start Date: 9/22/2016

Required Date: 9/27/2016

Start Qty: 2.00

Required Qty: 2.00

MS27039-08-12

Purchased

No

Each

130.0000

MS27039-08-12

Screw

Location

Loc Qty

Loc Code

ST278

130

123352

30

124326

100

DAS
6
9-89

NOV 17 2016

DAS
36
9-89

MS27039-08-13

M124326

(3x)

16/11/08

DAS
36
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : _____ _____ _____			
Misidentified ☐	☐	Past Due ☐	☐				

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 04229				SHEET 1 OF 1	
	DWG NO. 647.1600	REV: A	PREPARED BY J. SOTO	DATE: 11/11/2013	EFFECT ON DWG ☐ INC. ☒ UNINC.	
	DWG TITLE: WIPER DEFLECTOR ASSY					
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>David Barber</i>	QC <i>[Signature]</i>	EFF. NEXT ORDER		
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED F/N 8				ECR: 13-032	

SHOP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 151482 *MLJ*
 16-09-28

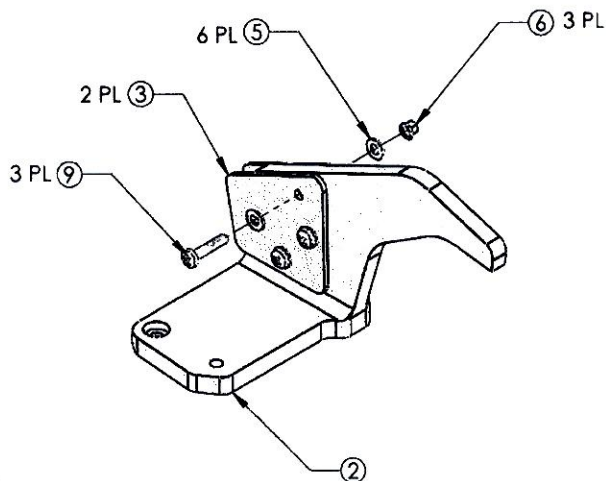
8	R	601.2207	8		NUTPLATE RIVET	CCR265SS3-3	
F/N	TC	PART NUMBER	.1602	.1601	DESCRIPTION	MATERIAL	SPECIFICATION
			QTY				

DOCUMENTS EFFECTED:	☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☒ BOM	CHANGE CATEGORY	DER REVIEW REQUIRED
		☐ MAJOR ☒ MINOR	☐ YES ☒ NO

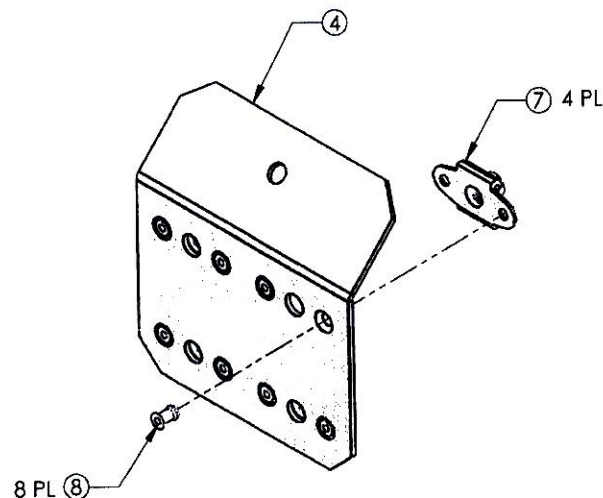
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NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 AMS-QQ-A-250/12
- 2 MATERIAL: ALUMINUM 2024-T3 PER AMS-QQ-A-250/4
- 3 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER IAW MIL-P-23377J TYPE I CLASS N
4. DEBURR AND BREAK ALL SHARP EDGES
5. IDENTIFY IAW MPP-120



647.1601 SHOWN EXPLODED



647.1602 SHOWN EXPLODED

REVISION			
REV	DESCRIPTION	DATE	APPROVED
1	LAST PRODUCTION REVISION PER		N/C
2	INITIAL RELEASE	08/10/09	F BRAVO
3	INCORPORATED ECN 0429	08/09/13	F BRAVO

UNINCORPORATED ECN(s)

04229

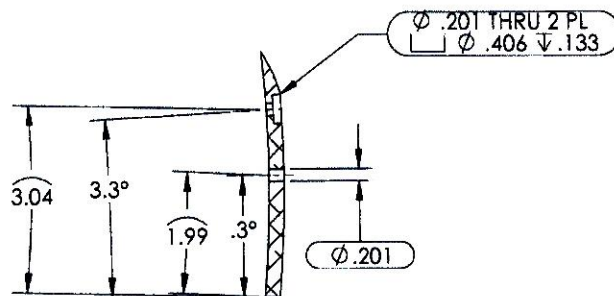
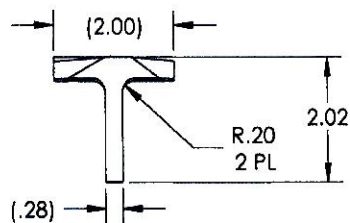
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8	8	601.2980	NUTPLATE RIVET	CCP284SS-3-04		
4	7	601.1900	NUTPLATE	MS21059-2		
3	6	601.2973	LOCKNUT	MS21042-03		
6	5	601.2764	WASHER	NAST149FMS32P		
1	4	647.1613	DOUBLER		3	3
2	3	647.1612	SPLICE PLATE		2	3
1	2	647.1611	WIPER DEFLECTOR, AFT		1	3
1	1	647.1610	WIPER DEFLECTOR, FWD		1	3
X		647.1602	DOUBLER ASSY			
X		647.1601	WIPER DEFLECTOR ASSY, AFT			
1602	1601	FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
PARTS LIST			PARTS LIST			
NEXT ASSY (S)			ORIGINAL DATE			
647.1300			DRAWN BY: F BRAVO			
			CHECKED BY: F BRAVO			
			DRAWING APPROVAL			
			CONTRACT NO.			
			UNLESS OTHERWISE SPECIFIED			
			DIMENSIONS ARE IN INCHES			
			TOLERANCES ARE			
			2 PLACE DECIMALS: ±.01			
			3 PLACE DECIMALS: ±.005			
			ANGLES: ±.5°			
			SCALE: NONE			
			SHEET 1 OF 6			

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

WIPER DEFLECTOR ASSY

SIZE: B CAGE CODE: 07M25 DWG. NO: 647.1600 REV: A

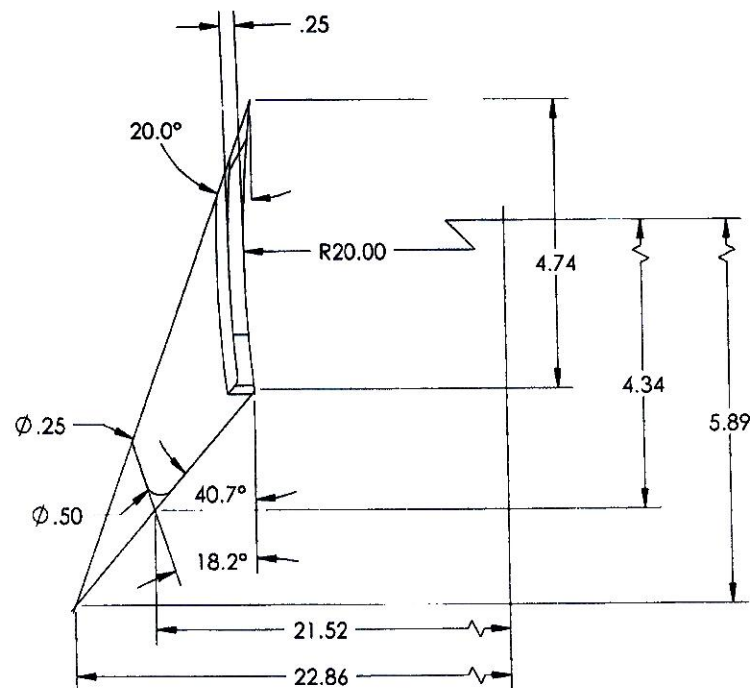
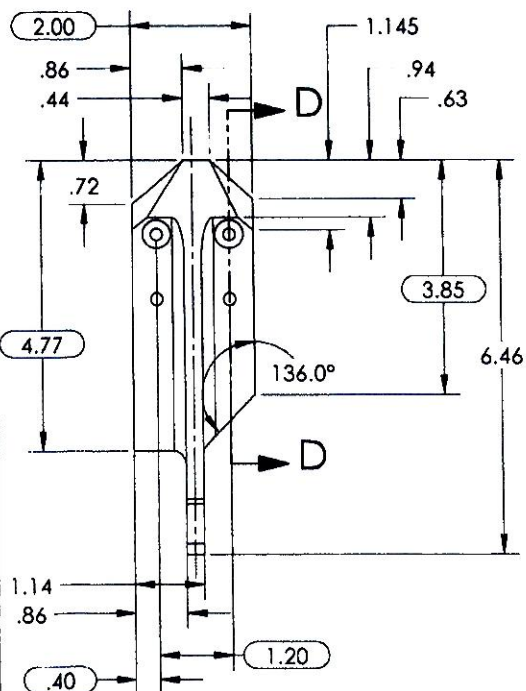
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SECTION D-D

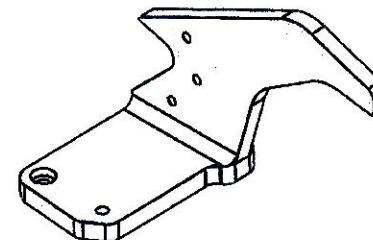
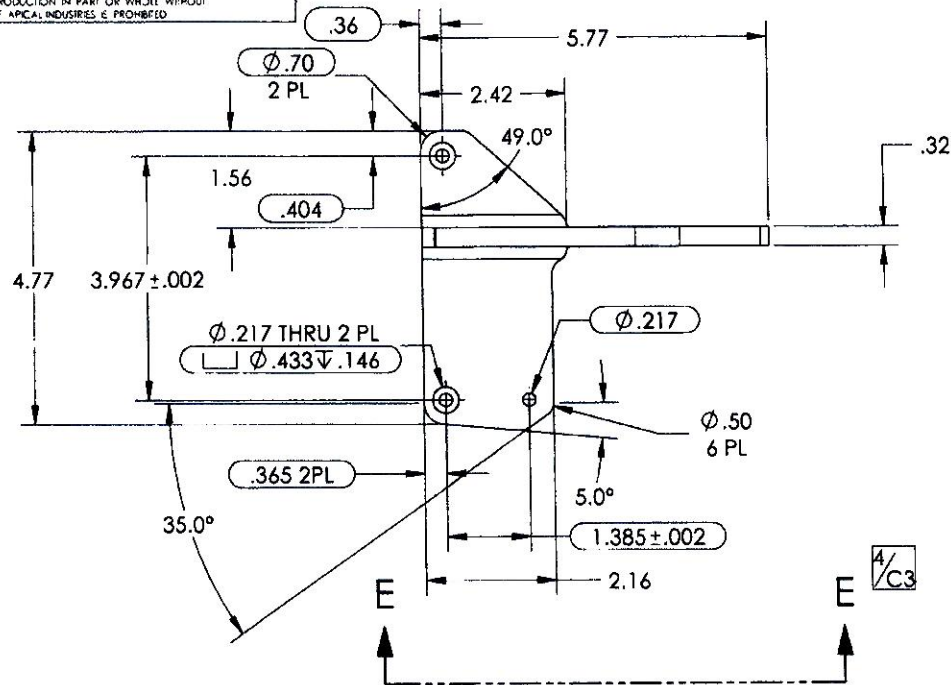


647.1610



ORIGINAL DATE MOD. DATE DRAWN BY J. GARDNER DRAWING APPROVAL P. BRAYO CO-ENGINEER		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ±.02 1 PLACE DECIMALS ±.005 ANGLES ±.5°		WIPER DEFLECTOR ASSY	REV. A
WIPER DEFLECTOR ASSY	WIPER DEFLECTOR ASSY	647.1600	2 OF 6
SCALE: NONE	SHEET		

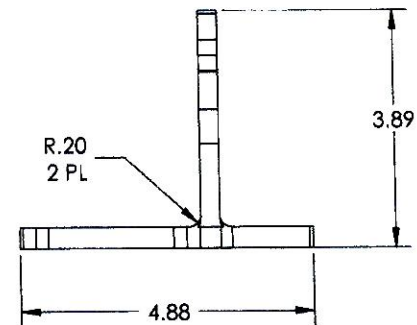
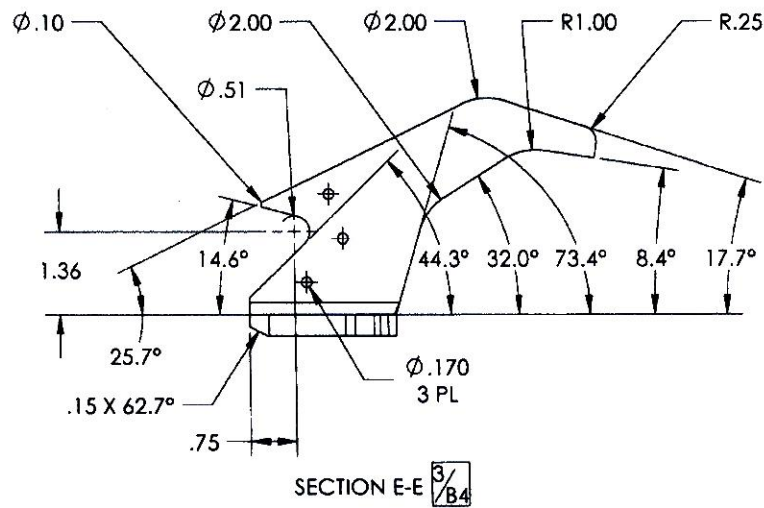
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647.1611

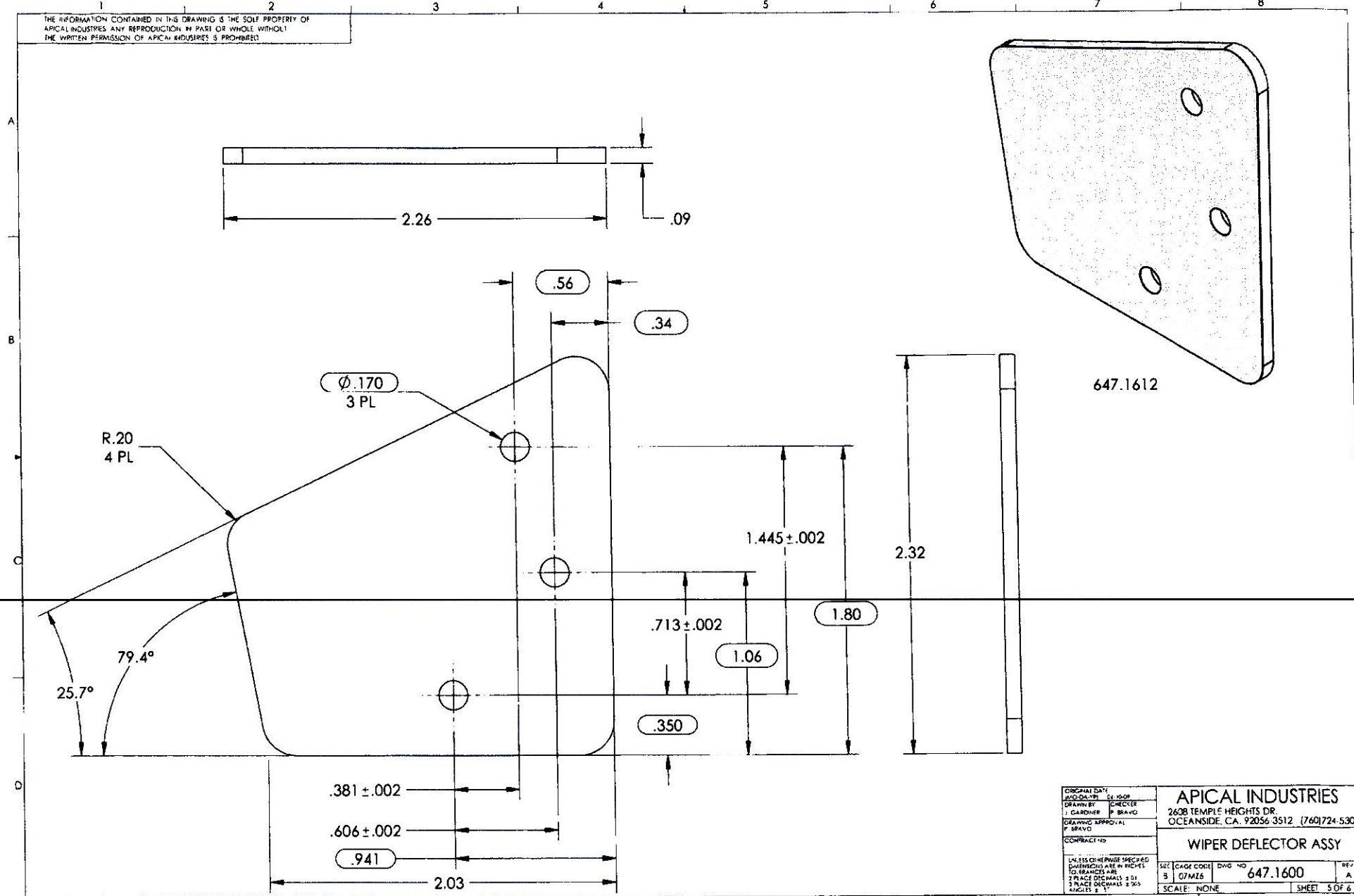
ORIGINAL DATE DESIGN VPI DRAWN BY J. CARDNER DRAWING APPROVAL P. BRAVO		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300	
CONTRACT NO.		WIPER DEFLECTOR ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .001 ANGLES ± .5°	REV B	FACE CODE 07M16	REV A
SCALE: NONE		647.1600	
		3-SHEET 3 OF 6	

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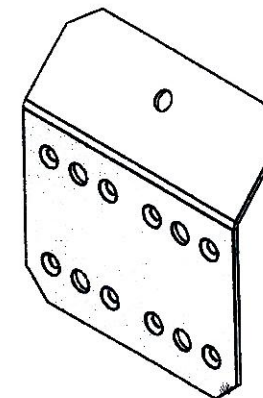
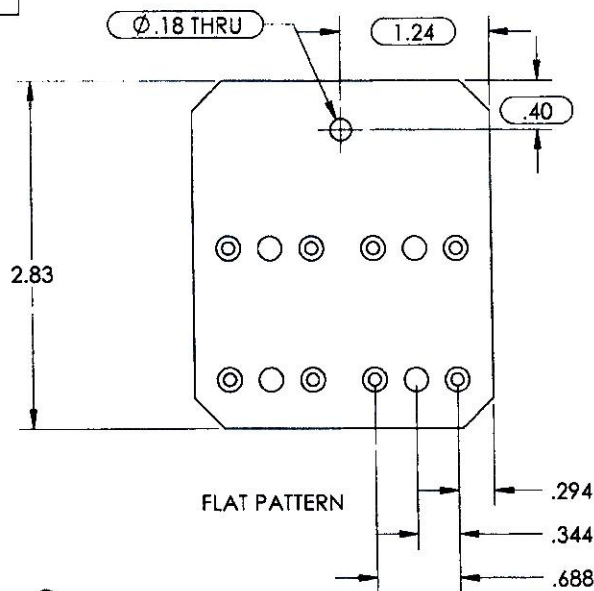
ORIGINAL DATE 10/20/84 10:15 AM 10/20/84		APICAL INDUSTRIES	
DRAWN BY: J. GARDNER		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: P. BRAVO		OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL: P. BRAVO		WIPER DEFLECTOR ASSY	
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.1°		SHEET 4 OF 6	REV. A
SCALE: NONE		647.1600	

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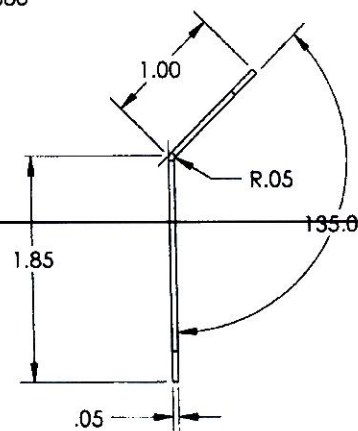
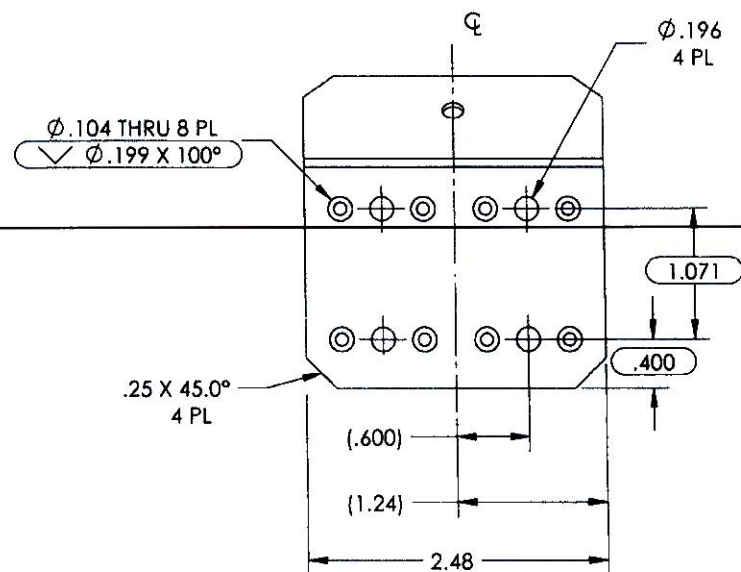


APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300		WIPER DEFLECTOR ASSY	
ORIGINAL DATE: 10/01/00 DRAWN BY: J. GARDNER CHECKED BY: P. BRAY DRAWING APPROVAL: P. BRAY CONTRACT NO:	SIZE: 3 CAGE CODE: 67M28 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TO FRANCES ARE 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± 1°	DWG NO: 647.1600 SCALE: NONE	REV: A SHEET 5 OF 6

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647.1613



ORIGINAL DATE 10-01-00		APICAL INDUSTRIES	
DRAWN BY J. GARDNER		2608 TEMPLE HEIGHTS DR.	
CHECKED BY P. BRAVO		OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAVO		WIPER DEFLECTOR ASSY	
CONTRACT NO.		647.1600	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°		3RD EDITION B 07/02/06	REV. A
SCALE: NONE		SHEET 6 OF 6	